

WATER USE STUDY
PASEO DE LA PLAYA
SITE 1
101 GARDEN STREET
SANTA BARBARA CA

Client: Mr. William Wright
130 Garden Street
Santa Barbara CA 93101

Prepared by: MAC Design Associates
1933 Cliff Drive, Suite 6
Santa Barbara, CA 93109

Date: May 9, 2006

W.O. 0189

PURPOSE

The purpose of this analysis is to determine the potable water use associated with the development of ninety-one (91) condominium units, a clubhouse and landscaping on the following parcels of land:

017-630-008
017-630-009
017-630-018
017-630-021
017-630-024
017-630-027

WATER USE ALLOCATION

The parcels described above comprise Area A of Specific Plan No. 2 which was approved by the City of Santa Barbara on September 27, 1983. Section F1A of the adopted Specific Plan approved a potable water allocation of 2.46 acre feet per year per acre of Area A. According to the approved Specific Plan, Area A has a site area of 5.076 acres, therefore the potable water allocation for Area A is as follows:

$$\text{Allocation} = (5.076 \text{ acres}) (2.46 \text{ AFY/AC}) = 12.49 \text{ AFY}$$

POTABLE WATER USE FOR PROPOSED DEVELOPMENT

This analysis will use water duty factors from the City's Water Demand Factor and Conservation Study to determine the potable water use for the proposed development.

Condominiums

The water duty factor for condominiums from the City's Water Demand Factor and Conservation Study is 0.28 AFY/Unit. This factor however includes landscape irrigation. The development proposes to use reclaimed water for irrigating all landscaping which will not be above the proposed parking garage. This means that approximately 70% of the site landscaping will use reclaimed water for irrigation. These landscaped areas therefore will not use potable water for irrigation. As stated previously, the City's water use factor for condominiums include landscape irrigation. The development will not use potable water to irrigate approximately 70% of the landscaped areas, therefore the water duty factor will be reduced by 33% to account for this potable water savings. The 33% reduction is conservative as landscape irrigation, even with drought tolerant species, represent a significant portions of a project's potable water use. The proposed reduction of the City's water duty factor will result in a new factor as follows:

$$\text{Revised Factor} = (0.28) (0.67) = 0.19 \text{ AFY/Unit}$$

When this factor is applied to the development, water use for the condominiums is as follows:

$$\text{Water Use} = (0.19 \text{ AFY/Unit}) (91 \text{ Units}) = 17.29 \text{ AFY}$$

CLUBHOUSE

Final design of the clubhouse has not been completed, however it is anticipated that it will contain the following fixtures:

- 2 Men's toilets
- 2 Men's sinks
- 1 Men's shower
- 2 Women's toilets
- 2 Women's sinks
- 1 Women's shower
- 1 Office toilet
- 1 Office sink
- 1 Kitchen sink
- 1 Kitchen dishwasher
- 2 Drinking Fountains

The factors contained in Table 6 of Document 2 of the City's Water Demand Factor and Conservation Study will be used to determine water use for the clubhouse. The factors contained in Table 6 are based on a per person basis, however it is difficult to determine the number of people who will use men's, women's and kitchen facilities on a daily basis. We will utilize the factors for these facilities for a single person over the course of a year. This will mean that over the course of a year each men's and women's toilet will be flushed 1,460 times, each men's and women's sink will be used 1,825 times, each men's and women's shower will be used 256 times, the kitchen sink will use 365 gallons of water and the dishwasher will be used 365 times. The office is assumed to have one (1) employee.

The water use in the clubhouse will be:

4 toilets @ 5110 gallons/yr	=	20,440 gal/yr
4 sinks @ 365 gallons/yr	=	1,460 gal/yr
2 showers @ 7,665 gallons/yr	=	15,330 gal/yr
1 office toilet @ 2,555 gallons/yr	=	2,555 gal/yr
1 office sink @ 365 gallons/yr	=	365 gal/yr
1 kitchen sink @ 365 gallons/yr	=	365 gal/yr
1 kitchen dishwasher @ 6,570 gallons/yr	=	6,570 gal/yr
2 drinking fountains @ 365 gallons/yr	=	<u>730 gal/yr</u>
TOTAL	=	47,815 gal/yr

Converting this to acre feet/yr yields the following:

$$\text{Water Use} = 47,815 \text{ gal/yr} / (43,560 \text{ sq. ft.}) (7.48 \text{ gal/sf}) = 0.15 \text{ AFY}$$

TOTAL WATER USE

The total estimated potable water use for the development will be as follows:

Condo	=	17.29 AFY
Clubhouse	=	<u>0.15 AFY</u>
		17.44 AFY

This exceeds the water allocation granted by Specific Plan No. 2 by 4.95 AFY (17.44 AFY – 12.49 AFY).

WATER USE STUDY
PASEO DE LA PLAYA
SITE 3
301 E. YANONALI STREET
SANTA BARBARA CA

Client: Mr. William Wright
130 Garden Street
Santa Barbara CA 93101

Prepared by: MAC Design Associates
1933 Cliff Drive, Suite 6
Santa Barbara, CA 93109

Date: May 17, 2006

W.O. 0189A

PURPOSE

The purpose of this analysis is to determine the potable water use associated with the development of the commercial site consisting of a market, retail, service commercial, office, mini-storage, one (1) manager's apartment, one (1) manager's office and landscaping on the following parcel of land:

017-630-005

WATER USE ALLOCATION

The parcel described above is identified as Area D of Specific Plan No. 2 which was approved by the City of Santa Barbara on September 27, 1983. Section F1A of the adopted Specific Plan approved a potable water allocation of 2.46 acre feet per year per acre of Area D. According to the approved Specific Plan, Area D has a site area of 3.906 acres, therefore the potable water allocation for Area D is as follows:

$$\text{Allocation} = (3.906 \text{ acres}) (2.46 \text{ AFY/AC}) = 9.61 \text{ AFY}$$

POTABLE WATER USE FOR PROPOSED DEVELOPMENT

This analysis will use water duty factors from the City's Water Demand Factor and Conservation Study to determine the potable water use for the proposed development.

Manager's Apartment

Using the water duty factor for senior citizen apartment buildings, the City's Water Demand Factor and Conservation Study allocates 0.12 AFY/Unit. This factor however includes landscape irrigation. The development proposes to use reclaimed water for irrigating all landscaping. The landscaped areas therefore will not use potable water for irrigation. As stated previously, the City's water use factor for senior citizen apartment buildings includes landscape irrigation. The development will not use potable water to irrigate approximately 50% of the landscaped areas, therefore the water duty factor will be reduced by 50% to account for this potable water savings. The 50% reduction is conservative as landscape irrigation, even with drought tolerant species, represent a significant portions of a project's potable water use. In fact, the summary of water use contained in Document No. 1 of the City's Water Demand Factor and Conservation Study for the Senior Citizen Apartment Buildings land use type indicates that the projects surveyed included large areas of open space dedicated to lawn and/or garden plots. The proposed reduction of the City's water duty factor will result in a new factor as follows:

$$\text{Revised Factor} = (0.12) (0.50) = 0.06 \text{ AFY/Unit}$$

When this factor is applied to the development, water use for the manager's apartment is as follows:

$$\text{Water Use} = (0.06 \text{ AFY/Unit}) (1\text{Unit}) = 0.06 \text{ AFY}$$

The factors contained in Table A of Document 2 of the City's Water Demand Factor and Conservation Study will be used to determine the water use for the commercial site including the manager's apartment and manager's office proposed for Site 3. The Mini-Storage site will not contain a washroom, therefore there is no potable water use associated with this land use. It is unclear from the summary of water use contained in Document 1 of the Water Demand Factor and Conservation Study Technical Report if these land uses include irrigation, therefore for the purpose of this report, it is assumed that landscape irrigation is not included. The commercial sites, manager's apartment and manager's office, and their Land Use Water Demand Factors are as follows:

Proposed Commercial Use	Table A – Land Use	Proposed Commercial SF	Table A – AFY
Market	Grocery Store	17,800	0.42/1000 sf
Retail	Retail, small	4,100	0.11/1000 sf
Service Commercial	Retail, small	3,275	0.11/1000 sf
Office	General office	9,375	0.10/1000 sf
Mini-Storage	n/a	n/a	n/a
Manager's Office	General office	150	0.10/1000 sf

Therefore, the average use rate for each commercial site including the manager's apartment and manager's office will be as follows:

Market (17,800) (0.42/1000)	= 7.47
Retail (4,100) (0.11/1000)	= 0.45
Service Commercial (3,275) (0.11/1000)	= 0.36
Office (9,375) (0.10/1000)	= 0.93
Mini Storage	= n/a
Manager's Apt. (0.06/unit)	= 0.06
Manager's office (150) (0.10/1000)	= <u>0.01</u>
TOTAL	= 9.28AFY

TOTAL WATER USE

The total estimated potable water use for the development will be 9.28 AFY. This does not exceed the water allocation of 9.61 AFY granted by Specific Plan No. 2.

